

The sweet lung: Chewing gummi bear aspiration

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ABSTRACT

Inhalation of foreign bodies, a leading cause of accidental death, is most common in preschool children. In this article we report our experience with a 5-year-old Greek girl who presented with a 24-hour history of sore throat, chest pain, and shortness of breath. Emergency bronchoscopy was performed and multiple small chewing gummi bear (HARIBO) particles impacted in the orifices of the right main bronchus and right lobar and segmental bronchi were successfully removed and aspirated. Aspiration of gummi bears, which is for the first time reported, may cause a silent choking episode leading to life-threatening bronchi obstruction at multiple sites, even in children older than 4 years.

KEY WORDS: Bronchoscopy, children, foreign body aspiration, gummi bear, lung

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INTRODUCTION

Asphyxiation by an inhaled foreign body is a leading cause of accidental death among children younger than 4 years.^[1] In a recent series of 103 children with foreign body aspiration (FBA), 64% of the patients were boys and the majority (73%) was younger than 3 years of age.^[2] The most common symptoms were sudden choking crisis (74%) and paroxysms of cough (73%). The most sensitive and specific clinical features were choking (86%) and witnessed aspiration episode (89%), respectively. Available chest radiographs revealed radio-opaque objects in 27% of patients.^[2] In another series, FBA was suspected by the parents in 59% of patients while witnessing of choking episode was the most important historical event to pinpoint an early diagnosis of FBA in children.^[3]

Most aspirated foreign bodies are organic materials (81%), nuts, peanuts (59%), seeds, and fruits^[4] being the most common. Although jellies may also be aspirated in the lungs of small children consuming sweets,^[5] there are

no reports describing characteristics of gummy or jelly sweets FBA in the literature. Today, HARIBO is the biggest manufacturer of gummy and jelly sweets in the world, with its products mainly consisting of gummi bears, other jelly sweets and liquorice.

We present a case of chewing gummi bear particles aspiration in a 5-year-old child. This is the first time that an extended “HARIBO lung” is described after a “secret” gummi bear aspiration in a child.

CASE REPORT

A previously healthy 5-year-old girl presented with a 24-hour history of sore throat, chest pain, and shortness of breath at the Pediatric Intensive Care Unit, University Hospital, Heraklion, Greece. On physical examination there were decreased breath sounds and wheezing on the right side. There was no history of viral illness, asthma, or FBA. A posteroanterior chest radiograph revealed right lung collapse and emphysema of the left lung, with tracheal deviation and mediastinal shift [Figure 1]. Thoracic computed tomography scanning showed extensive multiple obstructions of the distal airways of the right lung which were initially suggestive of disseminated FBA [Figure 2]. Emergency bronchoscopy was performed and multiple small chewing gummi bear (HARIBO) particles impacted in the orifices of the right main bronchus and right lobar and segmental bronchi were successfully removed and aspirated. Next day chest radiograph result

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was normal and the patient was discharged uneventfully without any complication.

DISCUSSION

Inhalation and ingestion of foreign bodies is most common in preschool children. Sudden onset of cough (72%), dyspnea (64%), and wheeze (60%) are the predominant symptoms and signs. The majority of foreign bodies (88%) lodge in the bronchial tree (right-sided 52%), with the remainder catching in the larynx or trachea.^[6] Only 11% of the foreign bodies are radio-opaque on radiograph, with chest radiographs being normal in 17% of children. Obstructive emphysema (53%) and normal chest radiograph (34%) are the most frequent radiological findings.^[3] Clinical and radiological findings of pneumonia and atelectasis are significantly more common in the groups with negative bronchoscopy or with delayed diagnosis.^[7] However, in toddlers with unexplained acute respiratory distress with refractory parenchymal infiltrates, unrecognized FBA should be considered. Although rigid bronchoscopy is the traditional diagnostic “gold standard,” the use of computerized tomography, virtual bronchoscopy, and flexible bronchoscopy is increasing.^[6]

Aspiration of gummi bears may cause a silent choking episode leading to life threatening severe respiratory complains, even in children older than 4 years. In a recent Healthy Lifestyle in Europe by Nutrition in Adolescence (HELENA) cross-sectional survey girls selected more fruit juice, water, herbal infusions, and sweets.^[8] Gummy and jelly sweets have become a clear favorite, attracting a loyal fanbase which is constantly growing throughout the world. The chewing gummi bear (HARIBO, Bonn, Germany), a dancing bear molded from fruit gum [Figure 3], has inspired a million different variant innovations in size, animal, shape, color, and flavor. This is the first time that a lung filled with gummi bears is described after FBA in a child (MEDLINE search).

Foreign body asphyxiation and ingestion needs a focus on education of parents and child caregivers regarding age, appropriate food, risk of play with small items, but also of older children consuming gummy or jelly sweets. Legislation for gummy sweets could be extended to children up to the age of 6 years, and to similar products marketed for children. Design changes and warning labels also have a place in prevention. Slogans around the world should now include the following: “HARIBO should be treated with caution – they may put children in danger of suffocation.”

CONCLUSION

In conclusion, we have reported our experience with a first case of a HARIBO lodged in the right main bronchus and right lobar and segmental bronchi. Aspiration of gummy or jelly sweets may cause a silent choking episode

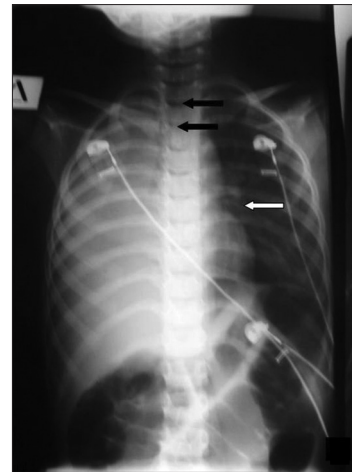


Figure 1: Chest radiograph showing tracheal deviation (black arrows), mediastinal shift (white arrow), left-sided hyperinflation, and low lung volumes and diffuse haziness on the right consistent with atelectasis

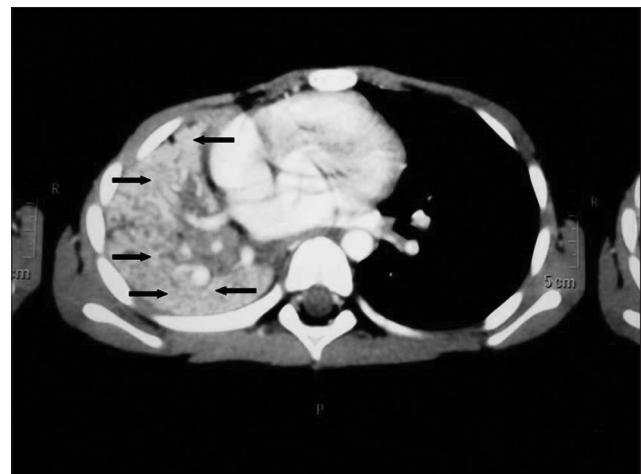


Figure 2: CT scan displays multiple obstructed lobar and segmental bronchi (black arrows) in the atelectatic right lung. No foreign body is shown whereas the left lung shows compensatory hyperaeration. Note the mediastinal shift toward the atelectatic side



Figure 3: The gummi/gummy bear is a dancing bear molded from fruit gum

leading to life threatening severe respiratory complains. Clinicians should keep a high index of suspicion for “silent asphyxia episodes” in children consuming gummy or jelly sweets, even in those older than 4 years old. Labels on these products should now include warnings for the danger of suffocation in all age’s children.

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